FOLDABLE MOBILE TERMINAL

TECHNICAL FIELD

[0001] The present invention relates to a foldable mobile terminal in which a first housing including a first display device and a second housing including a second display device are foldably connected together at hinge parts, and particularly to a technique by which display regions of the first and second display devices are continuously connected.

BACKGROUND ART

[0002] As display devices having a high image quality, e.g., liquid crystal display (LCD) devices and plasma display (PDP) devices have been known. By, e.g., a technique using a touch panel, a display device is provided in each of a pair of housings of a foldable mobile terminal.

[0003] As the foldable mobile terminal of this type, an information processing device has been known, which, as in, e.g., Patent Document 1, includes a unit configured to switch the information processing device between a first mode in which information is displayed on each of two display parts by using the display parts as separate screens and a second mode in which information is displayed on the two display parts by using the display parts as a single screen.

[0004] In addition, as in Patent Document 2, a device has been known, in which first and second display modules each having, on a front side thereof, a display panel for displaying an image are provided and the first and second display modules are pivotably connected together at a hinge part including a rotary shaft not on a front side of the display panels but on a back side of the display panels.

CITATION LIST

Patent Document

[0005] Patent Document 1: Japanese Patent Publication No. H09-305259

[0006] Patent Document 2: Japanese Patent Publication No. 2004-198472

SUMMARY OF THE INVENTION

Technical Problem

[0007] A liquid crystal display device which is a typical display device mainly includes a liquid crystal display panel, a liquid crystal module having, e.g., a backlight unit, a power source, and a housing in which the foregoing components are accommodated. The liquid crystal display panel includes a pair of glass substrates and a liquid crystal layer provided between the pair of glass substrates. On one of the pair of glass substrates, e.g., pixel electrodes are formed in matrix, and, e.g., TFTs, bus lines, and a drive circuit for supplying signals to the TFTs and the bus lines are provided. On the other glass substrate, a color filter layer, a common electrode, etc. are provided. In addition, the liquid crystal display panel has a display region in which a plurality of pixels are arranged, and a frame region surrounding the display region. In the frame region, a sealing part for sealing the liquid crystal layer between the pair of opposing glass substrates, a drive circuit mount part for driving the pixels, etc. are provided.

[0008] As described above, since the frame part which does not contribute to an image display is provided in the liquid crystal display panel, seams are visible in an image if a plurality of liquid crystal display panels are arranged to form a large screen. Such a problem is commonly caused not only in the liquid crystal display devices, but also in direct view type display devices such as PDP devices, organic EL display devices, and electrophoresis display devices.

[0009] Thus, in Patent Document 1, a hinge is provided so as not to overlap with the display parts of a main body, and therefore seams in an image become less visible.

[0010] Suppose that the pair of display parts are continuously connected together at any angles with planes of surfaces of the display parts passing through the center of a single hinge shaft. Each of the display parts is, on a front side thereof, covered by a cover which is, e.g., a glass plate or an acrylic plate having a certain thickness. Thus, when two housings are closed relative to each other, the housings cannot be fully closed due to contact between hinge-side end parts of the covers. There is a problem that, in order to fully close the housings relative to each other, a clearance should be maintained between the hinge-side end parts of the covers during opening/closing of the information processing device.

[0011] On the other hand, as in Patent Document 2, the single rotary shaft is arranged on the back side of the display panels. Thus, two screens are continuously connected together when the device opens 180°, and the device can be fully closed. However, continuity of the screens at angles of equal to or greater than 0° and less than 180° is not considered.

[0012] The present invention has been made in view of the foregoing, and it is an objective of the present invention to, during opening/closing of first and second housings relative to each other, maintain continuity of surfaces of display devices and smoothly opening/closing the first and second housings relative to each other.

Solution to the Problem

[0013] In order to accomplish the foregoing objective, a hinge part restricts, as viewed from the side, patterns of front-side corners of first and second display devices during opening/closing of a foldable mobile terminal in the present invention.

[0014] Specifically, a first aspect of the invention is intended for a foldable mobile terminal including first and second housings respectively including first and second display devices, the first and second housings being foldably connected together at a hinge part.

[0015] The hinge part connects the first and second housings together such that, when the first and second housings are opened/closed relative to each other, a front-side corner of the first display device and a front-side corner of the second display device move in a linear pattern relative to the hinge part as viewed from side with the front-side corners of the first and second display devices contacting each other.

[0016] According to the foregoing configuration, when the first and second housings are opened/closed relative to each other, the hinge part restricts the front-side corners of the first and second display devices to move in the linear pattern relative to the hinge part without the front-side corners of the first and second display devices blocking each other. Thus, even if part (cover) of each of the first and second display devices on a front side thereof has a certain thickness, the first and second housings can be smoothly opened/closed relative to each other with contact between the first and second display devices being maintained.